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IN THE UNITED STATES

PATENT AND TRADEMARK OFFICE

PATENT APPLICATION

INVENTORS: Sang-Wook Cheong
Namjung Hur

CASE: 5-1

Serial No.: 09/885,471

Group Art Unit: 1762

Filed: June 20, 2001

Title: MgB_2 Superconductors

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

SIR:

SUPPLEMENTAL DECLARATION UNDER 37 C.F.R. 1.131

We the Declarants, Sang-Wook Cheong and Namjung Hur, state that:

1. On Aug. 28, 2003, we signed a Declaration under 37 C.F.R. 1.131 for submission along with supporting Exhibits 1 – 4 in the above-referenced patent application. Herein, our Declaration of Aug. 28, 2003 is referred to as Our Earlier Declaration.

2. Paragraph 14 of Our Earlier Declaration describes experiments performed by Nanjung Hur to obtain pellets of $MgBr_2$ and associated Sample and Machine Log Notebook pages of Exhibits 2 and 3. A copy of one of these Notebook pages is attached Exhibit B and was dated Feb. 27, 2001 by Mr. Hur. A copy of the other of these Notebook pages is attached Exhibit C and was dated Feb. 28, 2001 by Mr. Hur. Mr. Hur prepared both Notebook pages in the U.S.A.

3. With respect to paragraphs 13 – 15 of Our Earlier Declaration, attached Exhibits D and E show other pages from Mr. Hur's Machine Log Notebook. Mr. Hur prepared both Notebook pages in the U.S.A. Exhibit D is a copy of a page of the Notebook that Mr. Hur dated Mar. 1, 2001. The page records preparations by Mr. Hur on sample BB 146 for obtaining an $MgBr_2$

pellet. Exhibit E is a copy of a page of the Notebook that Mr. Hur dated March 2, 2001. The page records preparations by Mr. Hur on sample BB 147 for obtaining an $MgBr_2$ pellet.

4. Herein, we certify that all statements made of our own knowledge are true and that all statements made on information and belief are believed to be true. We also understand that willful false statements and the like are punishable by fine, imprisonment or both under 18 U.S.C. 1001 and that willful false statements and the like may jeopardize the validity of the application-at-issue or any patent issuing thereon.

Date: June 24, 2004

Sang-Wook Cheong

Date: June 24 2004

Namjung Hur

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2/29/01

NH93 MgB_2 (Isotope "B") → actual $Mg_{0.938}B_2$

Mg 24.312 1.02 (1.1734)

B 10.811 2 1.0231

$B \rightarrow \frac{10.811}{24.312} \times \frac{2}{1.02} \times C$) = 0.87192 × (1.1734)

LF1700

RT → (100°C/h) 600°C (1h) → (100°C/h) 800°C (1h) → (100°C/h) 920°C (1h) → RT

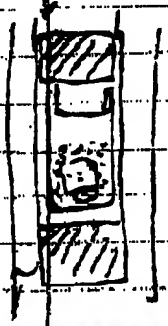
→ High pressure

NH94 MgB_2 (Isotope "B") flow gas

Mg 24.312 2 (1.8293)

B 10.811 1 0.4067

$B \rightarrow \frac{10.811}{24.312} \times \frac{1}{2} \times C$) = 0.22234 (1.8293)



RT → (100°C/h) 1020°C (0.5h) → (40°C/h) 923 → f.c RT (Ar + H_2) forming gas flow

EXHIBIT B
2nd Supplemental Declaration under 1.131
Patent Application No.: 09/885,471
Filed: June 20, 2001
Inventors: Sang-Wook Cheong et al

Aug-04-2003 09:57am From-Dept. of Physics & Astronomy 732-445-4343 T-128 P.008/014 F-882

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7/28/01 ~~BB~~ 145 - NH43 MgB_2

(3/4") Room T Upper ram ~~50~~ 3350
Lower ram 2200

T = 400°c UR 6100
LR 5500

T = 350°c UR 6200
LR 5500

RT → (100°c/h) 400°c (0.5h) → (100°c/h) 350°c (1h) → (fc) RT

~~Final - 60°c : UR 5550~~
LR 2650

BB

EXHIBIT C
2nd Supplemental Declaration under 1.131
Patent Application No.: 09/885,471
Filed: June 20, 2001
Inventors: Sang-Wook Cheong et al

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3/4/01 BR 146 MgB_2 (Alfa) PB2

(3/4 K) T = RT UR 3000
LR 2000

T = 400°C UR 6200
LR 5500

T = 850°C UR 1500
LR 1400

T = 700°C UR 6100
LR 3300

RT → (1000°C/h) 400°C (soak) → (100°C/h) 850°C (4h) → (fc) RT

EXHIBIT D
2nd Supplemental Declaration under 1.131
Patent Application No.: 09/885,471
Filed: June 20, 2001
Inventors: Sung-Wook Cheong et al

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3/2/01 BB147 MgB_2 (Alfa)

(3/4") T - RT UR 3100
LR 2000

Final : 41°C : UR 6300
LR 4200

RT $\xrightarrow[\text{min/L}]{}$ 400°C $\xrightarrow[100°C/L]{0.2L}$ 400°C $\xrightarrow[f\text{-}c]{2L}$ RT

EXHIBIT E
2nd Supplemental Declaration under 1.131
Patent Application No.: 09/885,471
Filed: June 20, 2001
Inventors: Sang-Wook Cheong et al